

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference ICM-001PC	FOR FURTHER ACTION See Form PCT/PEA/416	
International application No. PCT/US2004/032846	International filing date (day/month/year) 06.10.2004	Priority date (day/month/year) 07.10.2003
International Patent Classification (IPC) or national classification and IPC B62D57/024		
Applicant INTERNATIONAL CLIMBING MACHINES et al.		
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 8 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau a total of 2 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>		
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>		
Date of submission of the demand 03.05.2005	Date of completion of this report 16.12.2005	
Name and mailing address of the international preliminary examining authority:  European Patent Office - Gitschiner Str. 103 D-10958 Berlin Tel. +49 30 25901 - 0 Fax: +49 30 25901 - 840	Authorized Officer Nielles, D Telephone No. +49 30 25901-507	



**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/US2004/032846

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

Description, Pages

1-27 as originally filed

Claims, Numbers

1-25 as amended (together with any statement) under Art. 19 PCT

Drawings, Sheets

1/24-24/24 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/US2004/032846

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	4-13, 23, 24
	No: Claims	1-3, 14-22, 25
Inventive step (IS)	Yes: Claims	4, 7-13, 23, 24
	No: Claims	1-3, 5, 6, 14-22, 25
Industrial applicability (IA)	Yes: Claims	1-25
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Re Item V.

1 Reference is made to the following documents:

D1: GB 1545232 A

D2: US 4301568 A

D3: US 4138762 A

2 INDEPENDENT CLAIM 1

2.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

2.2 Document D1 discloses a surface traversing apparatus adapted to be adhered to a surface by a partial vacuum (see page 2, line 59), the apparatus comprising: a frame (5) forming a chamber (it is implicit that the suction pump in D1 is allocated in a chamber formed in the frame); a seal (suction cups, see page 2, lines 56 to 59) having a substantially closed seal perimeter defining an opening of the chamber (it is implicit that in the suction cups there is an opening to the suction pump), the seal perimeter having at least a portion (any suction cup) adapted substantially for rolling relative to the chamber and for contact with the surface to be traversed to prevent leakage and maintain a seal with the surface; and a drive (25) configured to move the apparatus relative to the surface.

2.3 Furthermore, the term "surface traversing apparatus" allows such a broad interpretation that even a device according to D2 falls under the scope of claim 1: D2 discloses a surface traversing apparatus (collection device 6) adapted to be adhered to a surface by a partial vacuum (provided by fan unit 5), the apparatus comprising: a frame (13) forming a chamber; a seal (see column 2, lines 57 to 62) having a substantially closed seal perimeter defining an opening of the chamber, the seal perimeter having at least a portion (12) adapted substantially for rolling relative to the chamber and for contact with the surface to be traversed to prevent leakage and maintain a seal with the surface; and a drive (the drive of the refuse collection vehicle) configured to move the apparatus relative to the surface.

3 DEPENDENT CLAIMS 2, 3, 5, 6, 14-20

- 3.1 Dependent claims 2, 3, 5, 6 and 14-20 do not contain any additional feature which, in combination with the subject-matter of claim 1, meets the requirements of the PCT with respect to Article 33(1) PCT.
- 3.2 All the additional features defined in the dependent claims 2, 3, 5, 6 and 14-20 are already disclosed in documents D2 (claims 2, 3, 18, 19), D3 (claims 5 and 6) and D1 (claims 14-17, 20).
- 3.2.1 Regarding claim 2, D2 discloses that a portion of the seal perimeter comprises at least one roller (12).
- 3.2.2 Regarding claim 3, D2 discloses that the roller (12) comprises a compressible outer surface (see column 1, lines 55 and 56)
- 3.2.3 Regarding claim 5, D3 discloses the use of at least two rollers in order to permit a constant vacuum in the case of ground unevenness. For the person skilled in the art it would be obvious to use at least two rollers as taught by D3 in the device according to D2 in order to improve the vacuum in the case of ground unevenness.
- 3.2.4 The arrangement of the rollers in opposing sides of the frame (for example left and right) is already anticipated by D3.
- 3.2.5 The features of claims 14 to 17 are disclosed by D1.
- 3.2.6 The features of claims 18 and 19 are disclosed by D2.
- 3.2.7 The use of a processor for controlling the apparatus is implicit in the apparatus according to D1 (because it comprises a control element 19, whose signals are

processed).

- 3.3 Therefore, claims 2, 3, 5 and 14-20 are not new (Art. 33(2) PCT) and claims 5 and 6 do not involve an inventive step (Art. 33(3) PCT).

4 DEPENDENT CLAIMS 4, 7-13

- 4.1 The subject-matter of claim 4 differs from D2 in that the drive is adapted to power the at least one roller. The subject-matter of claim 4 is therefore new (Article 33(2) PCT). The problem to be solved by this claim may be regarded as providing a different apparatus to D2, which does have its own propulsion unit. The solution to this problem proposed in claim 4 of the present application is considered as involving an inventive step (Article 33(3) PCT) because claim 4 discloses an alternative to D2 to which the person skilled in the art could not arrive without the exercise of inventive skills.
- 4.2 The subject-matter of claim 7 differs from D1 in that a portion of the seal perimeter comprises a track. The subject-matter of claim 7 is therefore new (Article 33(2) PCT). The problem to be solved by this claim may be regarded as simplifying the apparatus according to D1 by providing sealing by means of the tracks. The solution to this problem proposed in claim 7 of the present application is considered as involving an inventive step (Article 33(3) PCT) because from D1 the person skilled in the art would use lips 6 in order to seal the vacuum chamber.
- 4.3 Claims 8 to 11 are dependent on claim 7 and as such also meet the requirements of the PCT with respect to novelty and inventive step.
- 4.4 For the same reasons as in point 4.2, claim 12 is considered as being new (Article 33(2) PCT) and as involving an inventive step (Article 33(3) PCT).
- 4.5 Claim 13 is dependent on claim 12 and as such also meets the requirements of the PCT with respect to novelty and inventive step.

5 INDEPENDENT CLAIM 21

- 5.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 21 is not new in the sense of Article 33(2) PCT.
- 5.2 Document D1 discloses a surface traversing apparatus adapted to be adhered to a surface by a partial vacuum, the apparatus comprising a frame forming a chamber, a locomoting seal (suction cups in track 2) mounted to the frame and adapted substantially for rolling relative to the chamber and for contact with the surface to be traversed to prevent leakage and maintain a seal with the surface; and a drive configured to move the apparatus relative to the surface.

6 DEPENDENT CLAIM 22

- 6.1 Dependent claim 22 does not appear to contain any additional feature which, in combination with the subject-matter of claim 21, meets the requirements of the PCT with respect to Article 33(1) PCT. D1 already anticipates that the locomoting seal comprises a perimeter, at least a portion of which cooperates with the drive to move the apparatus relative to the surface.

7 INDEPENDENT CLAIM 23

- 7.1 The document D1 is regarded as being the closest prior art to the subject-matter of claim 23, and shows a surface traversing apparatus, the apparatus comprising a frame, a seal, the seal comprising first and second tracks disposed on opposing sides of the frame, and a drive configured to move the apparatus relative to the surface.
- 7.2 The subject-matter of claim 23 differs from this known apparatus in that first and second substantially parallel rollers are disposed on opposing sides of the frame, the rollers being rotatably connected to the frame, and in that the rollers and tracks are adapted substantially for rolling contact with the surface to be traversed and

maintaining a seal with the surface. The subject-matter of claim 23 is therefore new (Article 33(2) PCT).

- 7.3 The problem to be solved by the present invention may be regarded as simplifying the apparatus according to D1 by providing a vacuum chamber delimited by the two rollers and the two tracks. The solution to this problem proposed in claim 23 of the present application is considered as involving an inventive step (Article 33(3) PCT) because the person skilled in the art would not combine D1 and D2 since there is no indication in D2 of a use of the rollers in an apparatus as the one disclosed in D1. Furthermore, claim 23 discloses an alternative to D1 to which the person skilled in the art could not arrive without inventive skills.

8 DEPENDENT CLAIM 24

- 8.1 Claim 24 is dependent on claim 23 and as such also meets the requirements of the PCT with respect to novelty and inventive step.

9 INDEPENDENT CLAIM 25

- 9.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 25 is not new in the sense of Article 33(2) PCT.
- 9.2 Document D1 discloses a method of traversing a surface, the method comprising the step of: providing an apparatus adapted to be adhered to a surface by a partial vacuum, the apparatus comprising the apparatus comprising: a frame (5) forming a chamber; a seal having a substantially closed seal perimeter defining an opening of the chamber, the seal perimeter having at least a portion adapted substantially for rolling relative to the chamber and for contact with the surface to be traversed to prevent leakage and maintain a seal with the surface; and a drive (25) configured to move the apparatus relative to the surface.